ANTHROPOLOGICAL ANALYSIS OF THE ARPADIAN AGE POPULATION OF OROSHÁZA—RÁKÓCZITELEP

by

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1. Material and Method of Investigation

In 1951—52 ELEMÉR ZALOTAY and his collaborators undertook excavations to preserve grave goods in connection with earthworks carried out at Rákóczitelep near Orosháza. They partly unearthed in two phases, a churchyard several layers deep, dating back to the 10th—12th centuries, and containing all in all 680 graves. As a matter of fact already many of them had gone to wreck previous to notification, and later the nature of the work performed did not render possible a further excavation of the cemetery. ELEMÉR ZALOTAY made first a detailed typewritten report on the excavations from the archaeological point of view, then, in 1957, he gave a brief summary of the results.[1] He identified the cemetery and the church excevated on the site as belonging to the vanished mediaeval village of Gellértegyháza. In our opinion this identification needs still further corroboration, so we shall refer here to our material by the name of the site of the excavations (Rákóczitelep).

The first half of the preserved skeletal remains was transferred to the Orosháza Museum, where it was duly inventoried. Also GYÖRGY ACSÁDI of the Anthropological Department of the Museum of Natural History (Budapest) worked for a while on the excavation team in 1952. The material anearthed at that time was added to the collection of the Anthropological Department and it is still there. Later on the Orosháza Museum made over the material it had inventoried to the Anthropological Institute of Szeged University as a permanent deposit. This latter part of the skeletal remains found in the cemetery has been treated — chiefly with relation to metrical analysis — by GYULA FARKAS and GYULA DEZSŐ. Their results have been published in a brief report.[2] The metric, morphological and taxonomic analysis of the other portion of the material was performed by PÁL LIPTÁK at the Anthropological Department of the Museum of Natural History, as early as the middle of the 1950's. A selected portion of the Budapest material preserved in perfect condition was studied in connection with the examination of the horizontal profiling of the facial skeleton by TIBOR TÓTH, who published the results in his article.[3]

Since detailed publications of larger Arpadian Age series are still wanting, a concise, integrated account of the entire material seemed opportune, so we proceeded to do it in the present paper.

[1] ZALOTAY, E.: Gellértegyházai árpádkori temető. Régészeti Füzetek 7 (1957).

[2] FARKAS, GY.—DEZSŐ, GY.: Daten zur Anthropologie der Bevölkerung von Ungarn in den X—XII. Jahrhunderten. Acta Universitatis Szegediensis, Acta Biologica N. S. 1 (1955) 194—200.

[3] TÓTH, T.: Profilation horizontale du crâne facial de la population ancienne et contemporaine de la Hongrie. Crania Hungarica 3 (1958) 3—126.

Table 1. Orosháza—Rákóczitelep. — Arpadian Age Skeletal Material

Characterization of the Material		Inf. I.	Inf. II.	Juv.	Ad.	Mat.	Sen.	Total
Fragmentary *crania* (unmeasured)	Males	—	—	—	6	7	—	13 (34%)
	Females	—	—	—	8	4	—	12 (32%)
	Undeterminable	—	4	5	4	—	—	13 (34%)
	Total:	—	4	5	18	11	—	38
Well preserved *crania* (measured)	Males	—	—	—	28	39	13	80 (49%)
	Females	—	—	—	40	22	4	66 (40%)
	Undeterminable	1	11	6	—	—	—	18 (11%)
	Total:	1	11	6	68	61	17	164
	Sum-total:	1 (0,5%)	15 (7,4%)	11 (5,4%)	86 (42,6%)	72 (35,6%)	17 (8,4%)	202

Table 2. Orosháza—Rákóczitelep. — Arpadian Age

No. of measurements (Martin)	Measurements and indices	Males				Females			
		N	V	M	s	N	V	M	s
1.	Glabello-occipital length	87	171—203	185,8	6,48	75	158—197	179,5	6,68
8.	Maximum breadth of cranium	85	122—159	137,7	6,46	69	120—157	135,7	6,70
9.	Minimum frontal breadth	79	85—107	95,6	4,61	65	83—102	94,0	3,80
17.	Basion-bregma height	50	119—142	133,9	4,82	43	116—142	127,8	5,46
38.	Cranial capacity	41	1123—1600	1403,9	117,90	32	1091—1507	1313,6	99,90
45.	Bizygomatic breadth	48	110—142	130,6	6,38	40	115—143	124,3	6,02
47.	Face height	48	105—134	119,1	6,28	35	98—123	110,3	6,02
48.	Upper face height	70	62—86	72,2	4,90	55	55—78	67,2	4,72
72.	Total facial angle	42	75—89	83,6	3,18	32	78—93	83,4	3,36
8:1	Cranial index	81	64,8—87,7	74,3	4,49	69	63,8—84,9	75,8	4,42
17:1	Length-height index	47	64,3—77,6	72,2	3,02	42	64,7—77,3	71,4	3,23
17:8	Breadth-height index	50	86,1—105,3	97,7	4,23	42	77,7—108,3	94,5	6,04
9:8	Fronto-parietal index	76	60,3—78,9	69,9	3,34	62	58,9—76,7	69,5	3,44
47:45	Facial index	30	82,0—104,5	91,2	5,30	25	79,4—101,7	89,5	5,06
48:45	Upper facial index	48	48,2—65,5	55,7	3,67	38	47,1—62,9	53,8	3,79
52:51	Orbital index	69	70,5—97,5	83,3	5,50	50	70,7—95,0	84,1	4,12
54:55	Nasal index	63	39,7—60,0	49,3	4,08	44	37,0—58,9	49,2	4,98
	Calculated stature	15	155—174	166,8	5,15	10	144—162	151,9	5,14

According to the tabular outline presented in Table 1, skeletal remains of 202 individuals have been saved, but these include, however, a rather large proportion of fragmentary material, as well as skeletal remains of infants and subadults. The classification was performed according to MARTIN's rules[4], the methods being the same as those employed by PÁL LIPTÁK in his previous works [5,6]. It is to be noted that LEE-PEARSON's following formulae have been employed in stature calculations[7]:

Males e) 71,273+1,159 (*Femur*+*Tibia*)
f) 71,443+1,220 *Femur*+1,080 *Tibia*
i) 68,397+1,030 *Femur*+1,557 *Humerus*

Females e) 69,1154+1,126 (*Femur*+*Tibia*)
f) 69,561+1,117 *Femur*+1,125 *Tibia*
i) 67,435+1,339 *Femur*+1,027 *Humerus*.

Whenever any of the long bones figuring in these formulae was missing MANOUVRIER's method was utilized to calculate the stature.

Individual data referring to males (Table 8), females (Table 9), as well as subadults and infants (Table 10) are reported in the Appendix. A survey of the poorly preserved material unsuitable for detailed metric analysis is given in Table 11, while the principal individual metric data relating to the unfortunately somewhat sparsely salvaged long bones are contained in Table 12.

In the Tables five-figure inventory numbers (identical with the corresponding numbers in the inventory of the Orosháza Museum) denote the material preserved in Szeged, while that in Budapest is indicated by four-figure inventory numbers, the latter referring to the inventory of the Anthropological Department of the Museum of Natural History.

2. General Characteristics

The general characteristics of the population given here are based on Tables 2, 3 and 4.

The *crania* of the **males** are of *medium* length, rather narrow, with cranial indices in the upper range of dolichocrany. Consequently the dolichocranic and mesocranic index categories predominate, yet there is also a relatively large proportion of hyperdolichocranic *crania*. The cranial vault is of *medium* hight, on the evidence of the height indices mostly orthocranic and metrio-acrocranic. The frontals are predominantly eury-metopic. In the vertical norm the contour of the *cranium* is as a rule ellipsoid or pentagonoid. The *glabella* is moderately pronounced or *medium* (degrees 2 and 3 according to BROCA). As regards capacity, most *crania* are euencephalic or aristencephalic. — The faces are narrow, of *medium* height, the upper face is likewise of *medium* height, in respect to the facial index mostly meso-leptoprosopic or mesene-leptene. The orbits are meso-hypsikonch, the nasal index varies between wide limits, the mean value being mesorrhine. The *fossa canina* is shallow or of *medium* depth, moderate alveolar prognathism is frequent. — The mean of the calculated stature (based on a relatively small number of cases) is *medium* — tall *medium*.

The *crania* of the **females** are described here chiefly in comparison with

[4] MARTIN, R.: Lehrbuch der Anthropologie. Jena, 1928. II. vol.
[5] LIPTÁK, P.: L'analyse typologique de la population de Kérpuszta au Moyen Age. Acta Arch. Hung. 3 (1953) 303—370.
[6] LIPTÁK, P.: Awaren und Magyaren im Donau—Theiss Zwischenstromgebiet. Acta Arch. Hung. 8 (1958) 199—268.
[7] MARTIN op. cit. 1069—1071.

Table 3. Orosháza — Rákóczitelep. — Arpadian Age
Distribution of the principal metrical characters

Characters		Males	Females	Total
8 : 1 Cranial index	Ultradolichocranic	1 (1%)	1 (1%)	2 (1%)
	Hyperdolichocranic	14 (17%)	4 (6%)	18 (12%)
	Dolichocranic	34 (42%)	21 (30%)	55 (36%)
	Mesocranic	25 (31%)	28 (41%)	53 (35%)
	Brachycranic	4 (5%)	15 (22%)	19 (13%)
	Hyperbrachycranic	3 (3%)	—	3 (2%)
	Total:	81	69	150
17 : 1 Length-height index	Chamaecranic	12 (26%)	15 (36%)	27 (30%)
	Orthocranic	25 (53%)	24 (57%)	49 (55%)
	Hypsicranic	10 (21%)	3 (7%)	13 (15%)
	Total:	47	42	89
17 : 8 Breadth-height index	Tapeinocranic	5 (10%)	14 (33%)	19 (21%)
	Metriocranic	22 (44%)	15 (36%)	37 (40%)
	Acrocranic	23 (46%)	13 (31%)	36 (39%)
	Total:	50	42	92
9 : 8 Fronto-parietal index	Stenometopic	8 (11%)	12 (19%)	20 (14%)
	Metiometopic	17 (22%)	11 (18%)	28 (20%)
	Eurymetocip	51 (67%)	39 (63%)	90 (65%)
	Total:	76	62	138
47 : 45 Facial index	Hypereuryprosopic	—	1 (4%)	1 (2%)
	Euryprosopic	3 (10%)	3 (12%)	6 (11%)
	Mesoprosopic	9 (30%)	11 (44%)	20 (36%)
	Leptoprosopic	13 (43%)	7 (28%)	20 (36%)
	Hyperleptoprosopic	5 (17%)	3 (12%)	8 (15%)
	Total:	30	25	55
48 : 45 Upper facial index	Euryene	4 (8%)	5 (13%)	9 (10%)
	Mesene	19 (40%)	21 (55%)	40 (47%)
	Leptene	20 (42%)	9 (24%)	29 (34%)
	Hyperleptene	5 (10%)	3 (8%)	8 (9%)
	Total:	48	38	86

Characters		Males	Females	Total
52 : 51 Orbital index	Chamaeconch	2 (3%)	1 (2%)	3 (2%)
	Mesoconch	39 (57%)	33 (66%)	72 (61%)
	Hypsiconch	28 (41%)	16 (32%)	44 (37%)
	Sum-total:	69	50	119
54 : 55 Nasal index	Leptorrhine	21 (33%)	14 (32%)	35 (33%)
	Mesorrhine	19 (30%)	14 (32%)	33 (31%)
	Chamaerrhine	22 (35%)	14 (32%)	36 (34%)
	Hyperchamaerrhine	1 (2%)	2 (5%)	3 (3%)
	Total:	63	44	107
38. Cranial capacity	Oligencephalic	8 (20%)	4 (13%)	12 (16%)
	Aristencephalic	17 (41%)	8 (25%)	25 (34%)
	Eurymetopic	16 (39%)	20 (63%)	36 (49%)
	Total:	41	32	73
72. Total facial angle	Prognathous	4 (10%)	3 (9%)	7 (9%)
	Mesognathous	21 (50%)	18 (56%)	39 (53%)
	Orthognathous	17 (40%)	10 (35%)	27 (36%)
	Hyperorthognathous	—	1 (3%)	1 (1%)
	Total:	42	32	74
Calculated stature	Short	1 (7%)	2 (20%)	3 (12%)
	Short medium	2 (13%)	4 (40%)	6 (24%)
	Medium	3 (20%)	2 (20%)	5 (20%)
	Tall medium	5 (33%)	1 (10%)	6 (24%)
	Tall	4 (27%)	1 (10%)	5 (20%)
	Total:	15	10	25

those of the males, stressing the differences. The cranial indices shift by one and a half unit toward mesocrany, and in point of fact, the index categories reveal a predominance of mesocrany over dolichocrany, as well as a considerable proportion of brachycrany. In the vertical norm the contour of the *cranium* is mostly ovoid or pentagonoid. The *glabella* is indistinct or slight (degrees 1 and 2 according to BROCA). The cranial capacity is relatively large as compared with that of the males, and shows a marked predominance of aristencephaly. — The face is narrow, of *medium* breadth and moderate height, the upper face being relatively higher. As compared with the males, the facial and upper facial indices are slightly broader. It should be noted that the orbital indices barely show higher values than with the males. Neither are there marked differences in nasal indices. The distribution of the *fossa canina* follows that of the males, but alveolar prognathism is more pronounced among

the females. — There is a significant difference in calculated stature, but considering the small number of cases this value should be regarded only as approximate.

Taxonomical Analysis

In our opinion, taxonomical analysis is of major importance in palaeoanthropological research for a better comparison of series under study. In point of fact, it enables a more accurate ascertainment of the similarities or differences existing between populations than a simple confrontation of parameters. This circumstance having been of late repeatedly pointed out, both in connection with concrete materials and in the context of theoretical problems,

Table 4. Orosháza—Rákóczitelep. — Arpadian Age
Distribution of the principal morphological characters

Characteristics		Males		Females		Total	
		N	%	N	%	N	%
Norma verticalis	Ovoid	14	18	17	28	31	23
	Pentagonoid	19	25	19	31	38	28
	Ellipsoid	28	37	11	18	39	28
	Sphenoid	13	17	11	18	24	18
	Sphaeroid	—	—	2	3	2	2
	Other forms	2	3	1	2	3	2
Glabella	Broca 1.	4	5	30	47	34	24
	Broca 2.	24	32	28	44	52	37
	Broca 3.	37	49	6	9	43	31
	Broca 4.	8	11	—	—	8	6
	Broca 5.	3	4	—	—	3	2
Fossa canina	1. Absent	5	7	5	9	10	8
	2. Slight	23	32	19	33	42	32
	3. Medium	23	32	19	33	42	32
	4. Deep	16	23	8	14	24	19
	5. Very deep	4	6	7	12	11	9
Alveolar prognathism	1. Absent	18	25	9	16	27	21
	2. Moderate	31	44	22	39	53	42
	3. Pronounced	22	31	25	45	47	37

by PÁL LIPTÁK [8, 9], it seems superfluous to expound it here in detail. The morphologic and metric analysis of the complex of characters which became apparent in the material made it possible to identify them with the corres-

[8] LIPTÁK, P.: Die Bedeutung der taxonomischen Fragen in der historischen Anthropologie. Acta Facultatis Rer. Nat. Universitatis Comenianae, 5 (1961) 309—314.

[9] LIPTÁK, P.: Über die Bedeutung der taxonomischen Forschungen in der Anthropologie. Actes du VI[e] Congrès International de Sciences Anthropologiques et Ethnologiques. Paris, 1960. Tome I. 211—213.

Table 5. Orosháza—Rákóczitelep. — Arpadian Age
Taxonomical analysis

Types (races)	Males	Females	Total
Nordoids:			
Nordic (n)	32 (43%)	20 (33%)	52 (38%)
Protonordic (pn)	3 (4%)	—	3 (2%)
Mediterraneans:			
Gracile mediterranean (m)	17 (23%)	15 (25%)	32 (24%)
Atlanto-Mediterranean (am)	6 (8%)	—	6 (4%)
Iranian (i)	2 (3%)	1 (1%)	3 (2%)
Cromagnoids:			
Cromagnoid —A (crA)	7 (9%)	7 (11%)	14 (10%)
Cromagnoid —B or East Baltic (crB)	2 (3%)	7 (11%)	9 (7%)
Brachycephals:			
Alpine, Pamirian, Dinaric (a, p, d)	3 (4%)	6 (10%)	9 (7%)
Mongoloids	1 (1%)	4 (7%)	5 (4%)
Protomorphic racial components	2 (3%)	1 (1%)	3 (2%)
Total:	75	61	136

ponding taxonomical units in craniosystematics elaborated for the Middle Ages of the Carpathian Basin[10, 11].

It does not seem necessary to discuss the hierarchy of taxonomical categories; here, in general, we have to deal with races (geographical races, or rather *subspecies*) and subraces (*microsubspecies*). These are used alternately with the word „type", a neutral expression, but sufficiently current in anthropological nomenclature.

In the material dating from the Arpadian Age found at Orosháza-Rákóczitelep the following groups could be distinguished in decreasing order of frequency (Table 5):

(a) the tall, narrow-faced and long-headed group (Nordoids);

(b) the more slenderly built, *shorter,* long-headed group (Mediterraneans), and finally;

(c) the group of broad-faced Cromagnoids.

The Nordic (n) (Fig 1) and Proto-Nordic (pn) types have been classified as belonging to the group of *„Nordoids"*. Large absolute measurements, marked *cranium* relief, clearly marked dolichocrany and tall *medium* to high stature are typical of this group (Table 6). In the vertical norm the contour of the

[10] LIPTÁK, P.: 1958. op. cit. 226—242.

[11] LIPTÁK, P.: The „Avar Period" Mongoloids in Hungary. Acta Arch. Hung. 10 (1959) 251—279.

Table 6. Orosháza—Rákóczitelep. — Arpadian Age
The mean of the types (races)

No. of measurements (Martin)	Measurements and indices	n				m				crA				am	
		Males		Females		Males		Females		Males		Females		Males	
		N	M	N	M	N	M	N	M	N	M	N	M	N	M
1.	Glabello-occipital length	31	189,0	20	182,6	17	181,5	15	176,2	7	187,7	7	183,2	6	184,3
8.	Maximum breadth of cranium ...	32	138,3	20	135,9	16	133,7	14	130,1	7	138,0	7	137,2	6	135,5
9.	Minimum frontal breadth	32	97,4	20	94,0	17	92,4	15	93,5	7	100,2	7	95,0	6	95,6
17.	Basion-bregma height	22	136,2	12	130,6	10	130,8	12	128,1	5	133,6	6	120,8	6	132,6
38.	Cranial capacity	19	1461,5	9	1349,6	8	1260,7	9	1249,8	3	1428,0	5	1398,2	5	1438,0
45.	Bizygomatic breadth	23	131,8	13	125,7	8	123,7	10	120,9	6	134,8	3	131,6	4	131,7
47.	Face height	22	121,6	10	112,1	10	114,7	9	108,5	5	117,6	3	104,3	2	120,0
48.	Upper face height	30	74,6	15	68,2	15	69,3	14	65,5	7	69,1	7	63,1	5	72,4
72.	Total facial angle	16	85,0	11	82,8	8	80,8	12	83,2	6	83,0	2	83,5	5	84,6
8 : 1	Cranial index	31	73,2	20	74,5	16	73,6	14	73,5	7	73,5	7	74,9	6	73,5
17 : 1	Length-height index	21	72,5	12	71,2	10	72,3	12	72,8	5	70,6	6	70,7	6	71,9
17 : 8	Breadth-height index	22	98,2	12	95,4	10	97,7	12	97,4	5	96,4	6	94,6	6	97,9
9 : 8	Fronto-parietal index	32	70,4	20	69,2	16	69,2	14	71,9	7	72,7	7	69,2	6	70,6
47 : 45	Facial index	17	92,0	7	70,1	4	94,3	7	88,3	4	84,6	1	87,5	2	91,6
48 : 45	Upper facial index	23	56,4	12	54,3	8	56,2	10	53,2	6	50,9	3	48,8	4	54,6
52 : 51	Orbital index	32	84,3	14	83,5	14	82,5	12	83,9	7	79,2	7	80,7	5	85,6
54 : 55	Nasal index	25	48,4	11	49,1	14	49,1	13	49,4	7	51,6	4	47,8	5	48,4
—	Calculated stature	8	168,1	1	155,0	2	158,0	4	152,0	1	165,0	2	158,5	—	—

Table 7. Orosháza—Rákóczitelep. — Arpadian Age
Distribution of the principal morphological characters of the types (races)

Characteristics		n		m		crA		am	
		Males and females		Males and females		Males and females		Males	
		N	%	N	%	N	%	N	%
Norma verticalis	Ovoid	10	20	5	17	4	29	3	50
	Pentagonoid	11	22	14	48	2	14	2	33
	Ellipsoid	7	14	4	14	2	14	—	—
	Sphenoid	—	—	—	—	—	—	—	—
	Sphaeroid	—	—	1	3	—	—	—	—
	Other forms	—	—	1	3	1	7	—	—
Glabella	Broca 1.	5	10	12	38	3	21	1	17
	Broca 2.	19	40	9	28	4	29	3	50
	Broca 3.	20	42	7	22	7	50	2	33
	Broca 4.	3	6	4	13	—	—	—	—
	Broca 5.	1	2	—	—	—	—	—	—
Fossa canina	1. Absent	6	13	1	3	—	—	—	—
	2. Slight	17	36	8	28	5	36	1	20
	3. Medium	15	32	14	48	3	21	1	20
	4. Deep	7	15	4	14	3	21	3	60
	5. Very deep	2	4	2	7	3	21	—	—
Alveolar prognathism	1. Absent	12	26	4	14	5	36	2	40
	2. Moderate	20	43	13	45	5	36	2	40
	3. Pronounced	15	32	12	41	4	29	1	20

cranium is mostly ellipsoid. The *glabella* is relatively marked (Table 7). The Proto-Nordics may be considered as a more archaeomorphic variant of the Nordic race. It should be noted that the complexion of this complex of characters can be inferred only by analogy, thus it has not, for a certainty, to be a depigmented group.

The group of *Mediterraneans* is relatively heterogeneous. Besides the majority of gracile Mediterraneans (m) (Fig. 2.) characterized by small absolute measurements, taller Atlanto-Mediterraneans (am) (Fig. 3.) reminiscent of the Nordoid group have also been identified. Their metric characteristics range them in general as intermediates between the Nordic and the gracile Mediterranean races. Highly characteristics of this group is the high, rounded orbit. A small number of cases presented also the low *cranium* and strongly salient hook-nose of the Iranian (i) variant of the eastern Mediterranean; the latter being identifiable with Field's „Iranian Plateau Type" and OSANIN's „Khorassan" race, respectively.

Within the group of Cromagnoids the long-headed Cro-Magnoid-A (or rather the Dalic or Proto-European) type (crA) is represented in larger numbers (Fig. 4.). It is characterized by a relatively low and broad face and low,

oblong orbits. The Cromagnoid-B (crB) or East-Europid (East-Baltic) type was more frequent among the females.

The other racial components are of lesser importance. Within the short-headed group the Alpine type (a) predominates, whereas the Pamirian (p), Dinaric (d) and Armenoid (ar) elements are inconsiderable. Mongoloid features could be detected in a few cases, somewhat more frequently among the females. A couple of cases presented Palaeo-European proto morphic racial components, which could not be diagnosed more precisely. In the latter category might be included — whith a reservation — presumably Australoid (au) complex of characters, which appeared only as a secondary element.

4. Confrontation. Ethnogenetic Problems

A confrontation of the material we have examined with the more numerous and anthropologically more throughly analysed skeletal remains of the cemeteries unearthed in the Alföld (Great Hungarian Plain) and dating from the Arpadian Age, will reveal that it tallies fairly in particular with the populations of the Cegléd and Kiskunfélegyháza-Alpári út cemeteries; this correspondence is less close with the Jászdózsa material[12] reaching into the later Middle Ages. Despite the geographical proximity, the material of Csongrád—Felgyő[13] is, anthropologically speaking, more remote, understandably so since it dates in part from the time of the Hungarian Conquest.

Second to the 11th century cemetery of Kérpuszta, the Orosháza-Rákóczitelep material contains the largest number of cases among the analysed series dating from the Arpadian Age. It is worth-while to compare the anthropological structure of the two populations. Taking as a basis a similar analysis of the mediaeval population living between the Danube and the Tisza,[14] it may be stated that the Rákóczitelep population (naturally on the strength of the preserved anthropological material) is moderately heterogeneous, with a predominance of the Nordoid, Mediterranean and Cromagnoid racial components. These jointly make up about three quarters of the entire population. The largest proportion of a single racial component does not exceed 40 percent. Kérpuszta, on the other hand, presents a fairly different pattern. The population is by far more heterogenous, at least four dominant components entering into the make-up of its characteristic elements, viz. the Mediterranean, Cromagnoid-B (East-Europid), Cromagnoid-A and the considerable brachycranic groups; in the latter mainly Alpine and Dinaric (but according to our present fund of taxonomical knowledge also Pamirian) types occur as components. All these together do not make up more than 70 percent of the population. At Kérpuszta the most frequent race is the gracile Mediterranean,

[12] LIPTÁK, P.: 1958. op. cit. The material of Cegléd and Jászdózsa was published in this paper. As regards Kiskunfélegyháza, see

LIPTÁK, P.: A típusok elosztása Kiskunfélegyháza környékének XII. századi népességében. (Répartition des types anthropologiques de la population des environs de Kiskunfélegyháza du XII[e] siècle.) Biol. Közl. 1 (1954) 105—120.

[13] BARTUCZ, L.—FARKAS, GY.: Anthropologische Untersuchung der in Csongrád—Felgyő gefundenen Skelette aus der Arpadenzeit. Acta Universitatis Szegediensis, Acta Biologica N. S. 2 (1956) 235—261.

[14] LIPTÁK, P. 1958. op. cit.

which, however, amounts only to 35 percent of the entire population. After BÉLA SZŐKE's recent paper[15] there can be no more doubt as to the fact that also Kérpuszta is to a great extent a cemetery of Hungarian people. The same might be said of the Rákóczitelep site, although the latter has a different anthropological structure. This theory of ours is supported by the occurrence also of grave furnishings typical of the time of the Hungarian Conquest (e. g. in graves 57, 374 and 658). Unfortunately, the skeletal remains found in grave 57 — since they are not in the collection of the Anthropological Institute of Szeged University — could not be included in the publication. The individual buried in grave 374 does not differ from the average anthropological make-up of the population; grave 658 contained the skeleton of an infant.

The question should be raised here as to the ethnogenic significance of the tall, narrow-faced, long-headed racial component called for the sake of brevity „Nordoid". Not only at Rákóczitelep, but also at Kiskunfélegyháza, Cegléd and Jászdózsa it ranks first, and, what is more, an analysis of the material consisting of a total of 535 skulls of the numerous mediaeval (7th—13th centuries) population living between the Danube and the Tisza indicates that as regards its numerical proportion, this was the racial type predominant even during this long period. We have repeatedly emphasized that this component is not by all accounts characterized by a fair complexion consequently it may be as well a tall, more robust Mediterranean. Naturally, this question cannot be settled on skeletal evidence. Presumably it is — at least in part — of local origin, but neither can the possibility be dismissed that it comes from the East-European steppe (or rather forest-steppe) zone (Verchne-Saltovo). In support of this theory we wish to refer to the Hungarian Conquest Age cemetery of Szentes-Borbás farm still unpublished (the archaeological material having not yet been studied), where similar long-headed skulls have been found in graves containing skeletal remains of horse.

Undeniably, also the anthropology of the ethnic group called „Hungarian Conqueror" in archaeology is as yet not elucidated, despite the great number of anthropological papers published on the subject these last ten years. Moreover, there is the special problem of the Hungarian people. A tentative step towards its solution has been made by PÁL LIPTÁK in a paper published in 1958. In the preamble of GYULA LÁSZLÓ's recently published work[16] this has been acknowledged by the author as a positive attempt, with the addition that further steps had to be taken. And so it is indeed, considering the fact (well known to archaeologists!) that S-shaped temporal hair clamp furnishings are no more considered ethnic indices.

As a conclusion we think that our future task is to put on the agenda the systematic treatment of the skeletal remains found in the 10th—13th century cemeteries of the southern part of the Great Hungarian Plain, including, for instance, the material unearthed (unfortunately only in frag-

[15] SZŐKE, B.: A bjelobrdoi kultúráról. Arch. Ért. 86 (1959) 32—47. (Sur la civilisation de Bjelobrdo.)

[16] LÁSZLÓ, GY.: Östörténetünk legkorábbi szakaszai. Budapest, 1961. 13—15.

ments, but even so containing numerous items) in the Kardoskút—Hatablak fields near Orosháza, as well as that of the Hódmezővásárhely—Fehértó cemetery (probably dating from a somewhat later period than the Rákóczitelep cemetery). When these will have been confronted with the anthropological material of the recently unearthed and archaeologically already published 11th—12th century Szatymaz cemetery[17] and with that of the 10th—11th century Békés—Povádzug cemetery we should be able to give a more accurate answer to many an as yet unsolved ethnic and ethnogenetic question.

Conclusions

1. After the Transdanubian cemetery of Kérpuszta (Somogy Comitat) dating from the 11th century, the 10th—12th century Orosháza—Rákóczitelep cemetery, analyzed here for the moment from the anthropological point of view, is the second largest published Arpadian Age series, — although the latter comes from an incomplete excavation.

2. Its anthropological physiognomy is made up of three main components, viz. a tall, narrow-faced, robust and long-headed type; the gracile Mediterranean and the taller Atlanto-Mediterranean type; and finally the likewise tall and long-headed, but broad-faced Cromagnoids.

3. On the basis of the material preserved the population may be considered anthropologically as being moderately heterogenous. It presents several analogies among the cemeteries of the Great Hungarian Plain dating from about the same period, with the material of those of Kiskunfélegyháza, Cegléd and Jászdózsa, the latter, however, representing a more homogenous population. On the other hand, it differs from the material of the geographically nearer Csongrád—Felgyő site. There is a marked dissimilarity to the 11th century cemetery of Kérpuszta, the latter being as a matter of fact, far more heterogenous and predominantly composed of Mediterranean, Cromagnoid-A and Cromagnoid-B, as well as brachycranic racial components.

4. With respect to the Hungarian commoners, the tall, narrow-faced and long-headed type, mentioned above in the first place, seems to be of great importance; as a matter of course the colour of its hair and eyes cannot be determined from skeletal remains. This type might have its origin in the zone of the East-European steppes.

5. Taking all this into account, Orosháza—Rákóczitelep may be considered a cemetery of Hungarian people. To verify this theory the earliest possible systematic archaeological and anthropological publication of the material of the Arpadian Age cemeteries found in the South of the Alföld (Great Hungarian Plain) seems desirable, in particular of those situated in the Kardoskút—Hatablak Fields, at Hódmezővásárhely—Fehértó and — as far as practicable — those of the Migration Period, neighbouring Orosháza.

[17] BÁLINT, A.: Árpádkori temető Szatymazon, Móra Ferenc Múzeum Évkönyve, 1958—1959 (1960) 101—121.

Table 8. Orosháza—Rákóczitelep.—Arpadian Age.
Males (1)

No. of measurements (Martin)	Measurements and indices	3. 52,323 Mat.	7. 52,324 Mat.—Sen.	12. 52,325 Mat.	15. 52,326 Mat.	58. 52,330 Mat.	83. 52,334 Mat.	85. 52,336 Mat.	88. 52,338 Sen.	89. 52,339 Mat.	123. 52,344 Ad.	124. 52,345 Mat.	127. 52,347 Sen.	128. 52,348 Mat.	130. 52,349 Mat.	138. 52,351 Mat.	139. 52,353 Mat.—Sen.	141. 52,354 Sen.	150. 52,358 Ad.	152. 52,359 Mat.	155. 52,361 Mat.	Mat. 163. 52,364
1.	Glabello-occipital length	180	189	178	188	187	181	183	188	186	189	179	172	193	187	—	—	182	179	189	180	188
1c.	Metopion-occipital length	178	183	174	190	183	181	182	187	184	190	171	167	196	186	—	—	174	175	—	182	190
5.	Basion-nasion length	—	110	94	112	112	96	96	100	106	104	102	101	98	—	102	—	—	—	100	—	—
8.	Maximum breadth of cranium	134	135	138	137	136	131	137	137	144	136	146	134	144	125	142	149	136	140	134	133	135
9.	Minimum frontal breadth	90	102	92	98	97	91	92	99	101	98	95	92	107	92	96	—	94	85	93	95	98
17.	Basion-bregma height	—	138	134	135	138	138	132	140	141	130	133	128	124	—	140	—	—	—	136	—	—
20.	Porion-bregma height	109	110	109	110	115	112	107	118	115	109	117	105	110	107	115	—	110	104	118	—	111
32/1—a.	Frontal angle	45°	44°	50°	48°	52°	—	45°	51°	47°	50°	50°	46°	47°	—	46°	—	45°	46°	—	—	48°
38.	Cranial capacity	—	1485	1260	1430	1500	1360	1500	1520	1590	1410	1480	1250	1570	—	1600	—	—	—	1300	—	—
40.	Sup. facial length	86	95	94	88	—	—	88	96	96	97	—	98	101	—	89	—	—	—	—	—	—
45.	Bizygomatic breadth	126	138	121	132	129	—	130	130	137	(131)	141	(130)	127	—	134	—	141	—	90	—	136
46.	Maxillar breadth	—	95	91	91	96	—	97	94	112	97	94	92	91	—	96	—	97	87	125	—	100
47.	Total facial height	—	128	—	120	129	—	120	118	—	112	—	—	117	—	—	—	118	117	92	—	130
48.	Upper facial height	66	79	69	74	75	—	74	69	79	69	68	72	69	—	79	—	74	71	116	—	80
51.	Orbital breadth	40	40	41	40	40	—	42	40	40	39	41	40	42	—	43	—	41	41	66	—	39
52.	Orbital height	—	35	31	36	31	—	37	33	35	34	37	30	33	—	38	—	34	33	40	—	30
54.	Nasal breadth	—	—	25	24	—	—	25	25	27	25	22	24	22	—	23	—	27	24	32	—	26
55.	Nasal height	—	57	44	50	49	—	52	49	51	47	51	48	48	—	51	—	53	47	25	—	57
62.	Palatal length	—	47	48	41	—	—	—	45	46	43	—	45	47	—	45	—	50	—	45	—	47
63.	Palatal breadth	—	41	32	30	34	—	37	—	39	35	43	34	39	—	36	—	39	35	—	—	34
65.	Bicondylar-diameter	—	—	—	—	—	—	118	—	—	—	—	—	112	—	—	—	123	120	41	115	127
66.	Bigonial-diameter	—	100	—	—	103	—	101	103	—	100	—	—	98	—	—	109	109	99	115	111	118
69.	Mental height	—	27	—	—	35	30	30	37	—	29	—	—	36	—	—	30	32	31	92	—	38
70.	Ramus height	—	74	—	—	60	59	62	64	—	66	—	—	71	—	—	65	70	61	31	68	74
71.	Ramus breadth	—	33	—	—	32	27	29	31	—	33	—	—	35	—	—	29	31	32	—	35	37
72.	Total facial angle	85°	86°	75°	88°	88°	—	81°	83°	85°	86°	87°	82°	81°	—	87°	—	83°	79°	89°	—	88°
8:1	Cranial index	74,4	71,4	77,5	72,9	73,8	72,4	74,9	72,9	77,4	72,0	81,6	76,7	74,6	66,8	—	—	74,7	78,2	70,9	73,9	71,8
17:1	Length-height index	—	73,0	75,3	71,8	73,4	76,2	72,1	74,5	75,8	68,8	74,3	74,4	64,3	—	—	—	—	—	72,0	—	—
17:8	Breadth-height index	—	102,2	97,1	98,5	100,0	105,3	96,4	102,2	97,9	95,6	91,1	95,5	86,1	—	98,6	—	—	—	101,5	—	—
9:8	Transvers. frontopar. index	67,2	75,6	66,7	71,5	70,3	69,5	67,2	72,3	70,1	72,1	65,1	68,7	74,3	73,6	67,6	—	69,1	60,7	69,4	71,4	72,6
47:45	Facial index	—	92,8	—	90,9	100,0	—	92,3	90,8	—	85,5	—	—	92,1	—	—	—	83,7	—	92,8	—	95,6
48:45	Upper facial index	52,4	57,2	57,0	56,1	58,1	—	56,9	53,1	57,7	52,7	48,2	(55,4)	54,3	—	59,0	—	52,5	—	52,8	—	58,8
52:51	Orbital index	—	87,5	75,6	90,0	77,5	—	88,1	82,5	87,5	87,2	90,2	75,0	78,6	—	88,4	—	82,9	80,5	80,0	—	76,9
54:55	Nasal index	—	—	56,8	48,0	—	—	48,1	51,0	52,9	53,2	43,1	50,0	45,8	—	45,1	—	50,9	51,1	55,6	—	45,6
63:62	Palatal index	—	87,2	66,7	73,2	—	—	—	—	86,7	81,4	—	75,6	83,0	—	80,0	—	78,0	—	—	—	72,3
	Norma verticalis	Pent.	Ov.	Pent.	Pent.	Pent.	Pent.	Ell.	Ell.	Ell.	Ell.	Sphen.	Sphen.	Ell.	—	Pent.	—	Ell.	Pent.	—	Ell.	Ell.
	Glabella	3	4	3	2	3	3	1	3	3	2—3	3	4	3	3—4	4	—	3	3	—	3	2
	Protuberantia occipitalis externa	1	1	0	2	1	0	0	1	1	1	1—2	0	0	0	1	1	0	1	—	1	1
	Fossa canina	3	4	3	4	2	—	2	4	1	4	3	3	5	—	2	—	4	3	—	—	2
	Spina nasalis anterior	—	—	2	4	2	—	1	4	—	3	2	5	2	—	2—3	2	2	2	—	—	4
	Alveolar prognathism	2	1	2—3	2	2	—	2—3	3	**2**	2	2	**2**	2	—	1—2	—	2	2	—	—	1—2
	Calculated stature	—	172	—	—	—	—	—	—	—	173	—	—	160	—	—	174	—	—	—	168	—
	Type	m—x	n	m—au (?)	am	n—x	m	am	n—x	n—mo (?)	n—crA	a—crB	m—ar	n—au (?)	m	i—n	—	crA—x	m—a	n	—	n—x

Table 8. Orosháza—Rákóczitelep.—Arpadian Age.
Males (2)

No. of measurements (Martin)	177. 52,369 Sen.	178. 52,370 Sen.	179. 52,371 Sen.	182. 52,372 Mat.—Sen.	184. 52,373 Ad.	185. 52,374 Mat.—Sen.	191. 52,377 Sen.	202. 52,379 Mat.	217. 52,380 Mat.	232. 52,382 Ad.	237. 52,383 Mat.	257. 52,386 Mat.	261. 52,388 Mat.	285. 52,389 Ad.	286. 52,390 Sen.	287. 52,391 Mat.—Sen.	318. 52,393 Mat.	1. spor. 52,395 Ad.—Mat.	362. 7638 Ad.	374. 7646 Ad.	390. 7651 Mat.	392. 7653 Ad.—Mat.	408. 7660 Ad.	413. 7664 Ad.—Mat.
1.	184	187	193	186	182	—	188	184	—	188	180	187	184	189	183	181	189	182	193	179	183	184	189	187
1c.	185	182	188	177	182	180	185	178	—	187	184	187	183	194	182	177	183	187	186	178	183	183	189	184
5.	97	106	104	112	—	—	103	106	100	98	102	—	97	107	102	—	105	95	124	101	—	100	—	—
8.	138	136	131	137	142	137	128	133	129	139	138	132	146	144	135	143	139	141	(135)	137	—	144	133	141
9.	98	97	98	97	92	97	89	91	92	98	96	93	97	96	101	93	102	93	90	95	92	100	91	100
17.	130	128	132	140	—	132	132	140	130	131	135	—	129	142	132	—	134	133	141	134	—	139	—	—
20.	105	107	110	116	111	109	105	110	100	112	110	—	110	106	107	112	117	109	111	118	122	118	122	113
32/1—a.	51°	46°	46°	53°	—	47°	—	46°	46°	54°	47°	—	47°	52°	48°	—	47°	46°	—	55°	—	49°	—	—
38.	1430	1370	1350	—	—	—	—	1300	—	—	1450	1450	—	—	1380	—	—	—	1464	1340	—	1531	—	—
40.	89	97	86	—	—	98	—	97	92	97	91	—	89	97	98	—	100	96	—	101	—	96	—	—
45.	131	124	131	—	—	137	—	131	—	126	—	—	127	123	134	—	139	(128)	—	125	—	138	—	—
46.	98	97	103	—	—	97	—	99	92	105	98	—	97	93	97	—	94	—	—	92	95	97	93	102
47.	—	—	—	—	—	—	—	—	119	—	—	—	117	—	—	—	114	—	130	111	115	124	—	124
48.	73	74	71	—	—	76	—	75	71	63	74	—	69	74	(67)	74	68	72	77	65	68	71	72	77
51.	40	42	41	42	—	42	—	41	40	39	40	—	42	38	40	43	42	37	39	39	41	38	38	42
52.	33	34	32	33	—	33	—	34	31	30	35	—	34	32	32	34	33	34	33	30	32	32	34	36
54.	23	22	25	—	—	25	—	25	24	24	25	—	25	23	24	29	25	22	26	23	24	23	26	26
55.	50	49	48	—	—	—	—	53	49	46	50	—	49	51	48	52	51	47	56	47	52	47	51	58
62.	39	46	44	—	—	47	—	44	45	46	43	—	—	44	44	43	49	43	—	48	—	44	—	51
63.	—	—	—	—	—	39	—	—	41	41	—	—	38	43	—	33	31	—	43	44	—	—	—	41
65.	—	—	—	—	—	—	—	—	119	—	—	—	—	—	—	—	125	—	119	114	—	117	—	124
66.	—	—	—	104	98	—	—	—	108	—	—	97	—	—	—	—	111	—	106	97	—	108	—	113
69.	—	—	—	35	37	—	—	—	31	—	—	28	35	—	—	—	22	—	34	35	31	36	—	33
70.	—	—	—	71	64	—	—	—	68	—	—	65	60	—	—	—	64	—	75	63	62	70	—	69
71.	—	—	—	35	32	—	—	—	33	—	—	31	30	—	—	—	30	—	33	31	31	32	—	29
72.	83°	87°	84°	—	—	—	—	84°	80°	81°	85°	—	83°	88°	86°	83°	80°	77°	—	83°	—	82°	—	—
8:1	75,0	72,7	67,9	73,7	78,0	—	68,1	72,3	—	73,9	76,7	70,6	79,4	76,2	73,8	79,0	73,5	77,5	69,9	76,5	—	78,3	70,4	75,4
17:1	70,7	68,5	68,4	75,3	—	—	70,2	76,1	—	69,7	75,0	—	70,1	75,1	72,1	—	70,9	73,1	73,1	74,9	—	75,5	—	—
17:8	94,2	94,1	100,8	102,2	—	96,4	103,1	105,3	100,8	94,2	97,8	—	88,4	98,6	97,8	—	96,4	94,3	104,4	97,8	—	96,5	—	—
9:8	71,0	71,3	74,8	70,8	64,8	70,8	69,5	68,4	71,3	70,5	69,6	70,5	66,4	66,7	74,8	65,0	73,4	66,0	66,7	69,3	—	69,4	68,4	70,9
47:45	—	—	—	—	—	—	—	—	—	—	—	—	92,1	—	—	—	82,0	—	—	88,8	—	89,9	—	—
48:45	55,7	59,7	54,2	—	—	55,5	—	57,3	—	50,0	—	—	54,3	60,2	(50,0)	—	48,2	(56,3)	—	52,0	—	51,4	—	—
52:51	82,5	81,0	78,1	78,6	—	76,2	—	82,9	77,5	76,9	87,5	—	81,0	84,2	80,0	79,1	78,6	91,9	84,6	76,9	78,1	84,2	89,5	85,7
54:55	46,0	44,9	52,1	—	—	—	—	47,2	49,0	52,2	50,0	—	51,0	45,1	50,0	55,8	49,0	46,8	46,0	48,9	46,2	48,9	51,0	44,8
63:62	—	—	—	—	—	83,0	—	—	91,1	89,1	—	—	—	97,7	—	—	63,3	—	—	91,7	—	—	—	80,4
N. vert.	Pent.	Pent.	Ell.	Sphen.	Sphen.	Ell.	Ov.	Sphen.	Sphen.	Ell.	Ov.	—	Pent.	Pent.	Ov.	Pent.	Ell.	Pent.	Ell.	Ell.	Sphen.	Ell.	Av.	Sphen.—ell.
Glab.	2—3	2	2	3	2	—	2	2	3	3	2	2	3	3	3	4	3	2	3	2	2	3	1	3—4
Pr.occ.e.	1—2	0	1	1	1	0	0	1	2	0	1	1	0	3	0	0	1	0	2	0	0	2	1	0
F.can.	3	4	5	—	—	3	—	2	3	2	3—4	—	3—4	2	4	3	4	2	1	4	3	4	2	2
Sp.nas.	4	2	2	—	—	—	—	3	4	3	3	—	1	1	4	2	—	2	4	2	1	2	—	2
A.progn.	1—2	2	2—3	—	—	2—3	—	2	1	2—3	1	—	1	2—3	1	1	1	2—3	3	3	3	3	2	2
Calculated stature	—	165	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	173	—	155	—	—	161
Type	am	i—m	crA—x	n—x	—	n—x	am—x	n—x	crB—x	crA—am	am—n	—	m	n—am	am—crA	n—x	crA—x	m—crA (?)	n	m—x	m	n—x	m	m—x

Table 8. Orosháza—Rákóczitelep.—Arpadian Age.
Males (3)

No. of measurements (Martin)	423. 7667 Ad.—Mat.	428. 7668 Ad.	429. 7669 Ad.—Mat.	430. 7670 Ad.—Mat.	445. 7677 Ad.—Mat.	448. 7679 Ad.	459. 7684 Ad.	461. 7686 Ad.—Mat.	473. 7690 Ad.—Mat.	495. 7694 Mat.	498. 7697 Ad.	500. 7699 Ad.	503. 7702 Ad.—Mat.	510. 7705 Mat.	513. 7707 Ad.	523. 7711 Ad.	539. 7714 Ad.	541. 7717 Ad.	556. 7721 Mat.	568. 7727 Ad.	586. 7732 Ad.	589. 7733 Ad.	591. 7734 Ad.	594. 7735 Mat.	596. 7736 Ad.	598. 7737 Ad.—Mat.	599. 7739 Ad.	600. 7740 Ad.	611. 7745 Ad.	616. 7746 Ad.	618. 7748 Ad.	626. 7750 Ad.—Mat.	651. 7761 Ad.—Mat.	657. 7764 Ad.	— 7766 Ad.—Mat.
1.	187	186	(202)	(203)	196	183	179	196	189	189	192	192	181	197	185	181	(173)	187	172	187	185	188	195	180	195	197	173	181	178	186	198	188	183	179	185
1c.	183	189	196	199	191	180	176	193	183	191	188	196	180	189	178	174	172	181	172	182	182	184	189	178	188	196	166	187	178	183	189	184	174	176	179
5.	—	—	—	—	119	104	99	—	101	102	106	97	(104)	(105)	—	102	—	106	—	108	—	107	99	(118)	—	105	—	—	—	106	—	96	101	105	98
8.	(151)	137	131	—	136	143	141	146	140	148	146	132	139	134	141	134	148	144	(141)	(140)	128	125	(137)	(122)	(134)	134	139	—	127	133	144	142	126	137	138
9.	91	106	93	87	100	(101)	91	99	104	102	102	92	101	98	99	94	100	100	96	92	94	88	95	88	97	98	92	92	89	105	100	89	93	97	95
17.	—	—	—	—	136	142	133	—	132	133	134	130	133	—	—	132	—	139	—	—	132	—	136	124	—	—	—	—	—	139	—	134	119	137	130
20.	110	116	121	—	117	121	106	113	111	117	117	107	116	116	115	113	116	115	112	110	110	112	111	112	118	122	108	109	112	113	125	113	107	118	112
32/1—a.	—	—	—	—	—	49°	47°	—	47°	—	—	48°	—	—	—	52°	—	46°	—	—	—	—	—	—	—	—	—	—	—	47°	—	46°	45°	—	50°
38.	—	—	—	—	1472	1522	1388	—	1453	1590	1518	1425	1369	—	—	1258	—	1481	—	—	1276	—	1369	1123	—	—	—	—	—	1397	—	—	1127	1350	1322
40.	—	—	—	—	120	94	88	—	94	106	—	91	105	—	—	107	—	100	—	—	(103)	—	(98)	—	—	—	—	—	—	99	—	95	101	—	101
45.	—	—	—	—	—	139	(135)	—	138	—	142	126	—	122	137	124	—	134	126	—	—	(130)	(131)	—	(133)	121	—	—	(123)	135	—	129	(110)	—	135
46.	86	100	96	93	—	98	97	97	91	103	101	96	—	78	92	91	95	100	89	88	(91)	100	94	87	97	87	95	—	90	98	90	94	82	84	95
47.	115	121	—	134	—	116	119	126	120	127	128	119	122	(125)	—	111	109	115	—	105	113	113	120	111	129	—	114	121	113	123	—	114	115	111	125
48.	72	71	—	81	—	76	75	76	68	78	76	72	72	76	83	64	64	69	62	65	66	71	74	66	80	72	73	74	70	75	86	69	72	65	72
51.	40	39	—	—	41	40	40	41	44	40	39	38	38	38	40	40	39	41	38	40	39	39	39	39	43	36	39	—	38	40	42	39	42	40	38
52.	32	35	—	—	32	35	34	35	31	34	36	31	35	36	39	31	32	32	32	31	30	32	35	34	35	31	34	—	32	34	38	32	36	35	29
54.	23	24	25	25	27	25	25	27	26	30	26	25	—	—	25	27	23	25	23	24	27	26	—	(21)	23	25	26	28	25	23	25	24	25	24	25
55.	50	48	—	—	52	53	54	52	46	55	57	46	54	53	58	45	44	49	49	50	48	52	52	49	58	54	53	51	53	52	60	46	52	51	48
62.	—	43	—	—	—	46	46	49	—	—	49	43	—	—	—	48	46	46	46	—	—	48	—	—	—	—	—	—	44	47	48	47	49	—	52
63.	(38)	43	—	—	—	—	40	45	—	—	41	38	—	—	42	41	40	39	—	40	38	44	—	—	40	39	42	48	38	42	—	—	41	37	—
65.	—	—	118	113	—	127	120	—	120	—	127	111	—	—	—	119	118	(115)	111	125	—	—	128	109	113	—	113	130	103	124	—	123	—	105	—
66.	106	105	87	98	—	105	116	105	94	111	109	105	110	98	—	99	104	115	92	92	90	113	107	91	100	—	97	117	86	112	—	104	92	89	110
69.	28	33	28	38	—	31	34	38	35	—	36	31	36	33	—	33	32	33	27	28	35	34	33	28	44	—	29	38	30	35	—	—	32	29	39
70.	69	55	57	70	72	69	66	80	69	69	65	64	62	67	—	62	63	70	66	61	62	—	71	62	72	64	70	70	63	71	—	64	73	60	68
71.	32	29	30	36	32	30	33	32	32	34	34	31	34	30	—	29	30	35	25	34	28	29	30	31	35	35	28	30	31	34	—	30	31	31	35
72.	—	—	—	—	—	84°	85°	—	87°	—	—	86°	—	—	—	77°	—	83°	—	—	—	—	—	—	—	—	—	—	—	83°	—	82°	83°	—	82°
8:1	80,8	73,7	64,8	—	69,4	78,1	78,8	74,5	74,1	78,3	76,0	68,8	76,8	68,0	76,2	74,0	85,6	77,0	82,0	74,9	69,2	66,5	70,3	67,8	68,7	68,0	80,4	—	71,4	71,5	72,7	75,5	68,9	76,5	74,6
17:1	—	—	—	—	69,4	77,6	74,3	—	69,8	70,4	69,8	67,7	73,5	—	—	72,9	—	74,3	—	—	71,4	—	69,7	68,9	—	—	—	—	—	74,7	—	71,3	65,0	76,5	70,3
17:8	—	—	—	—	100,0	99,3	94,3	—	94,3	89,8	91,8	98,5	95,7	—	—	98,5	—	96,5	—	—	103,1	—	99,3	101,6	—	—	—	—	—	104,5	—	94,4	94,4	100,0	94,2
9:8	60,3	77,4	71,0	—	73,5	70,6	64,5	67,8	74,3	68,9	69,9	69,7	72,7	73,1	70,2	70,2	67,6	69,4	68,1	65,7	73,4	70,4	69,3	72,1	72,4	73,1	66,2	—	70,1	78,9	69,4	62,7	73,8	70,8	68,8
47:45	—	—	—	—	—	83,5	88,2	—	87,0	—	90,1	94,4	—	(102,5)	—	89,5	—	85,8	—	—	—	86,9	91,6	—	97,0	—	—	—	91,9	91,1	—	88,4	(104,5)	—	92,6
48:45	—	—	—	—	—	54,7	55,6	—	49,3	—	53,5	57,1	—	62,3	60,6	51,6	—	51,5	49,2	—	—	54,6	56,5	—	60,2	59,5	—	—	56,9	55,6	—	53,5	65,5	—	53,3
52:51	80,0	89,7	—	—	78,1	87,5	85,0	85,4	70,5	85,0	92,3	81,6	92,1	94,7	97,5	77,5	82,1	78,1	84,2	77,5	76,9	82,1	89,7	87,2	81,4	86,1	87,2	—	84,2	85,0	90,5	82,1	85,7	87,5	76,3
54:55	46,0	50,0	—	—	51,9	47,2	46,3	51,9	56,5	54,6	45,6	54,4	—	—	43,1	60,0	52,3	51,0	46,9	48,0	56,3	50,0	—	42,9	39,7	46,3	49,1	54,9	47,2	44,2	41,7	52,2	48,1	47,1	52,1
63:62	—	100,0	—	—	—	—	86,9	91,8	—	—	83,7	88,4	—	—	—	85,4	86,9	84,8	—	—	—	91,7	—	—	—	—	—	—	86,4	89,4	—	—	83,7	—	—
N. vert.	Ov.	Quadr.	Dol.—Ov.	Ell.	Ell.	Sphen.	Ov.	Ell.	Ov.	Ell.	Ell.	D.pent.	Ov.	Sphen.	Ell.	Ov.	Sphen.	Ov.	Ell.	Sphen.	Ell.	Pent.— Ell.	D.—Pent.	Ov.	Ell.	Ell.	Ov.	Sphen.	D.—Pent.	Ell.	Pent.	Sphen.	D.—Pent.	Pent.	Ov.
Glab.	5	2—3	—	2—3	3	3	2	2—3	3	2	3	2	2—3	5	2—3	3	2	3	2	2	1	3	2	2	2	3—4	2	2	1	3	3	3	4	2	5
Pr.occ.e.	1	3	0	4	0	0	2	1	1	1	2	2	3	3	4	0	1	1	0	3	1	1	3	2	2	0	0	3	1	0	2	0	2	2	2
F.can.	1	3	3	4	4	2	3	2	3	2	2	2	3	2	3	2	2	2	5	3	5	3	2	3	1	2	3	1	2	3	2	4	3	3	4
Sp.nas.	—	2	—	2	2	4	4	2	3	—	2	2	—	5	3	1	2	3	4	3	—	4	2	—	3	2	—	3	2	4	2	2	4	—	4
A.progn.	1	1	2	2	1	1	3	2	2	2	1	2	3	1	2	3	3	1	3	3	2	2	1	1	1	1	2	3	3	3	2	3	2	2	2
Calculated stature	—	—	—	169	168	168	167	—	—	—	—	164	—	—	—	—	—	165	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Type	moid	crA—x	pn	pn	n	n—x	n—x	n—x	crA—x	n—x	n	n	n—x	n—x	n—x	pmorf.	d	crA—x	crB—a	n—x	m—x	n—m	n	m	n	n	a—x	—	m	n	n	pmorf.	m	m—n	pn

Table 9. Orosháza—Rákóczitelep. — Arpadian Age.
Females (1.)

No. of measurements (Martin)	Measurements and indices	16. 52.327 Mat.	68. 52.331 Mat.	80. 52.332 Ad.	81. 52.333 Mat.	84. 52.335 Ad.	94. 52.341 Mat.	104. 52.342 Sen.	112. 52.343 Sen.	126. 52.346 Ad.	142. 52.355 Ad.	143. 52.356 Ad.	162. 52.363 Ad.	165. 52.365 Ad.	166. 52.366 Ad.	175. 52.367 Mat.	176. 52.368 Ad.	187. 52.375 Mat.	190. 52.376 Mat.	193. 52.378 Sen.	254. 52.384 Ad.—Mat.	255. 52.385 Ad.	258. 52.387 Sen.	316. 52.392 Mat.	330. 52.394 Ad.	2. spor. 52.396 Mat.	(138.) 52.352 Mat.	358. 7635 Ad.	363. 7639 Ad.—Mat.	369. 7643 Ad.	373. 7645 Ad.
1.	Glabello-occipital length	172	174	182	185	184	180	189	164	171	179	179	180	183	172	182	184	183	173	189	181	173	177	178	185	181	172	172	185	176	171
1c.	Metopion-occipital length	172	174	181	184	184	182	185	160	178	181	178	178	—	175	177	184	186	176	189	183	175	175	179	187	186	—	173	183	176	168
5.	Basion-nasion length	107	98	102	—	96	—	102	—	92	105	97	—	97	93	98	97	—	98	—	99	99	—	95	100	95	96	—	102	96	95
8.	Maximum breadth of cranium	135	130	128	133	141	145	139	—	131	123	134	—	139	141	137	—	138	137	135	130	126	142	143	135	137	133	146	144	136	135
9.	Minimum frontal breadth	93	94	90	97	92	102	92	94	89	92	99	94	101	83	93	97	95	97	95	94	91	98	92	96	99	—	95	100	90	92
17.	Basion-bregma height	133	129	130	133	124	—	125	—	128	—	126	—	130	123	127	120	—	128	—	132	128	—	125	138	128	126	—	129	134	128
20.	Porion-bregma height	99	110	111	115	115	—	111	103	104	114	105	101	110	105	101	96	110	106	104	113	104	112	107	114	109	110	118	116	110	111
32/1—a.	Frontal angle	47°	47°	51°	—	50°	—	50°	50°	50°	47°	—	—	46°	44°	—	—	46°	47°	—	49°	48°	44°	46°	—	50°	48°	—	48°	49°	54°
38.	Cranial capacity	—	1150	1320	—	1330	—	—	—	1370	—	—	—	1380	—	1370	—	1300	—	—	—	—	—	1340	—	—	—	—	1440	1313	1224
40.	Sup. facial length	86	95	103	—	88	—	100	—	88	—	—	—	94	—	95	87	—	97	—	100	95	—	83	—	88	—	—	130	127	125
45.	Bizygomatic breadth	—	125	132	—	126	—	133	—	116	122	—	116	126	118	125	—	(129)	—	—	—	—	—	124	—	—	130	—	130	127	125
46.	Maxillar breadth	87	90	100	—	91	98	94	89	96	89	—	84	93	91	96	92	103	99	—	91	94	94	91	—	91	90	101	96	95	95
47.	Total facial height	—	—	—	—	—	—	—	—	—	111	—	118	110	—	—	—	—	111	—	118	117	113	123	—	—	—	123	121	111	105
48.	Upper facial height	67	65	68	—	69	75	71	65	65	66	—	73	66	(63)	72	70	70	72	—	70	68	65	78	—	61	—	73	77	69	65
51	Orbital breadth	37	37	41	—	40	43	41	38	38	—	—	42	39	—	38	—	38	41	—	—	—	40	39	—	38	40	38	41	38	38
52.	Orbital height	31	31	35	—	33	—	34	32	33	—	—	35	32	—	32	37	32	35	—	—	—	38	35	—	31	33	36	32	33	32
54.	Nasal breadth	22	23	24	—	26	22	24	22	21	24	—	23	24	—	22	—	27	—	—	—	22	25	21	—	22	—	20	27	33	24
55.	Nasal height	46	40	—	—	46	—	—	47	48	—	—	50	48	—	51	—	53	50	—	—	45	—	50	—	—	—	54	52	56	48
62.	Palatal length	—	44	—	—	42	44	51	42	36	—	—	47	42	—	45	40	48	47	—	—	—	46	—	—	42	—	43	44	43	41
63.	Palatal breadth	34	39	39	—	35	36	37	—	31	37	—	—	35	—	35	—	—	39	—	—	35	39	38	—	—	—	39	43	40	37
65.	Bicondylar-diameter	—	—	—	116	—	—	—	—	—	—	—	111	117	—	—	121	—	120	—	92	—	119	119	—	—	—	—	—	115	114
66.	Bigonial-diameter	—	—	98	88	—	—	—	—	—	—	—	98	94	—	—	98	—	92	—	92	—	89	101	—	—	—	96	102	99	101
69.	Mental height	—	—	32	24	—	—	—	—	—	—	—	32	27	—	—	33	—	33	—	33	—	33	32	34	—	—	35	34	30	27
70.	Ramus height	—	—	61	60	—	66	—	63	—	63	—	61	—	—	—	65	—	59	62	59	61	57	57	67	—	—	—	72	61	63
71.	Ramus breadth	—	—	31	28	—	30	—	27	—	30	—	26	—	—	—	30	—	30	29	33	28	33	28	30	—	—	28	31	32	26
72.	Total facial angle	85°	81°	81°	—	88°	—	82°	89°	82°	—	—	—	85°	—	80°	78°	80°	80°	—	78°	80°	—	93°	—	86°	—	—	87°	84°	84°
8:1	Cranial index	78,5	74,7	70,3	71,9	76,6	80,6	73,5	—	76,6	68,7	74,9	—	76,0	81,5	75,3	—	75,4	79,2	72,6	71,8	72,8	80,2	80,3	73,0	75,7	77,3	84,9	77,8	77,3	78,9
17:1	Length-height index	77,3	74,1	71,4	71,9	67,4	—	66,1	—	74,9	—	70,4	—	71,0	71,1	69,8	—	—	74,0	—	72,9	74,0	—	70,2	74,6	70,7	73,2	—	69,7	76,1	74,9
17:8	Breadth-height index	98,5	99,2	101,6	100,0	87,9	—	89,9	—	97,7	—	94,0	—	93,5	87,2	92,7	—	—	93,4	—	101,5	101,6	—	87,4	102,2	93,4	94,7	—	89,6	98,5	94,8
9:8	Transvers. frontopar. index	68,9	72,3	70,3	72,9	65,3	70,3	66,2	—	67,9	74,8	73,9	—	72,7	58,9	67,9	—	68,8	70,8	70,4	72,3	72,2	69,0	64,3	71,1	72,3	—	65,1	69,4	66,2	68,2
47:45	Facial index	—	—	—	—	—	—	—	—	—	91,0	—	101,7	87,3	—	—	—	—	—	—	—	—	—	99,2	—	—	—	—	93,1	87,4	84,0
48:45	Upper facial index	—	52,0	51,5	—	54,8	—	53,4	—	56,0	51,0	—	62,9	52,4	53,4	57,6	—	54,3	—	—	—	—	—	62,9	—	—	—	—	59,2	54,3	52,0
52:51	Orbital index	83,8	83,8	85,4	—	82,5	—	82,9	84,2	86,8	—	—	83,3	82,0	—	84,2	—	84,2	85,4	—	—	—	95,0	89,7	—	81,6	82,5	94,7	78,1	86,8	84,2
54:55	Nasal index	47,8	57,5	—	—	56,5	—	—	46,8	43,8	—	—	46,0	50,0	—	43,1	—	50,9	—	—	—	48,9	—	42,0	—	—	—	37,0	51,9	58,9	50,0
63:62	Palatal index	—	88,6	—	—	83,3	81,8	72,6	—	86,1	—	—	—	83,3	—	77,8	—	—	83,0	—	—	—	84,8	—	—	—	—	90,7	97,7	93,0	92,5
Norma verticalis		Ov.	Pent.	Pent.	Pent.	Sphen.	—	Pent.	—	Pent.	Ov.	Pent.	Ell.	—	Pent.	Pent.	Pent.	Ov.	Sphen.	Pent.	Ov.	Pent.	—	Sphen.	Pent.	Pent.	Sphen.	Sphen.	Ell.	Ell.	Ov.
Glabella		2	2	2—3	2—3	2	3	3	2	1	3	2	2	—	1	2	1	2	2	1	1	1	1	1—2	1	1	1	1	2	1	2
Protuberantia occipitalis externa		1	0	0	1	0	0	0	0	0	1	0	—	—	0	0	0	1	1	0	0	0	0	0	0	0	—	0	0	0	0
Fossa canina		3	4	5	—	3	2	1	3—4	2—3	2	—	4	—	5	3	5	3	4	—	3	3	5	2	—	3	2	5	3	2	4
Spina nasalis anterior		—	2	—	—	1	2	—	3	2	2	—	4	—	—	1	1	2	2	—	—	2	2—3	1	—	—	—	—	1	2	1
Alveolar prognathism		2	2—3	3	—	3	3	1	2—3	2	1	—	3	—	—	2	2	3	3	—	—	—	3	1	—	1	—	2	2	1	2
Calculated stature		—	—	162	152	—	—	—	—	—	—	—	—	—	—	—	—	155	—	—	—	—	—	—	—	—	—	144	—	—	—
Type		m—a—x	pmorf.	crA—x	m—x	n—x	crB—x	n—x	m—br	m	m—am	—	i	n—x	crB—x	n—x	crB—x	n—crA	n—p—x	—	n	n	n—a	p—x	n	crA—x	—	a—x	n—x	m—mo	m

Table 9. Orosháza—Rákóczitelep.—Arpadian Age.
Females (2)

No. of measurements (Martin)	391. 7652 Mat.	394. 7655 Ad.	406. 7659 Ad.	(409.) 7661 Ad.	410. 7662 Ad.	415. 7665 Ad.— Mat.	440. 7672 Ad.	442. 7674 Ad.	446. 7678 Ad.	456. 7682 Ad.	457. 7683 Ad.	460. 7685 Ad.	492. 7692 Mat.	499. 7698 Ad.	502. 7701 Ad.	512. 7706 Mat.	519. 7710 Ad.	529. 7712 Ad.— Mat.	540. 7715 Ad.	552. 7720 Ad.	558. 7722 Ad.	582. 7730 Ad.	585. 7731 Ad.	604. 7742 Ad.	608. 7743 Ad.	610. 7744 Ad.	617. 7747 Ad.	625. 7749 Ad.	628. 7751 Ad.	629. 7752 Ad.— Mat.	631. 7753 Ad.— Mat.	636. 7754 Ad.— Mat.	640. 7756 Ad.	650. 7760 Mat.	653. 7762 Ad.	(377.) 7767 Ad.— Mat.
1.	175	179	(174)	184	175	178	158	188	182	180	187	179	174	174	181	180	176	180	182	183	188	187	160	175	(185)	188	179	186	189	188	181	184	184	173	181	166
1c.	175	179	175	179	174	175	163	186	182	184	181	180	170	178	182	180	170	178	181	186	190	190	157	174	180	183	176	187	186	185	177	180	177	166	185	162
5.	96	92	—	96	95	—	—	—	100	104	93	93	96	93	98	90	101	—	101	101	99	99	—	—	—	104	—	(104)	—	—	—	98	—	—	—	96
8.	132	142	141	133	125	130	133	(120)	142	130	157	136	139	131	135	147	134	132	129	141	135	133	133	133	(130)	136	129	(141)	136	137	143	142	128	132	137	132
9.	94	93	99	94	90	90	98	92	92	98	99	100	99	97	97	96	90	93	94	94	95	92	90	96	93	98	89	98	93	86	92	92	89	92	97	86
17.	128	—	—	119	119	—	—	—	130	132	122	122	117	120	132	126	116	—	133	135	126	131	—	—	142	135	—	130	—	—	—	126	—	—	—	128
20.	113	—	115	101	101	(113)	102	111	112	110	108	110	103	106	112	119	110	107	109	112	110	112	102	100	115	116	114	118	115	114	114	107	113	108	119	107
32/1—a.	48°	—	—	42°	45°	—	—	—	—	—	—	51°	45°	52°	51°	47°	—	—	52°	—	—	—	—	—	—	49°	—	—	—	—	—	49°	—	—	—	51°
38.	1214	—	—	1222	1127	—	—	—	1423	1313	1507	1240	1182	1163	1340	1414	1091	—	1285	1464	1359	1387	—	—	1369	1387	—	1425	—	—	—	1331	—	—	—	1150
40.	91	95	—	100	91	—	—	—	(95)	101	(97)	96	90	98	93	86	105	—	97	—	90	—	—	—	97	98	—	(98)	—	—	—	93	—	—	—	86
45.	121	132	123	119	116	—	—	—	—	120	132	126	—	116	121	130	115	122	120	—	—	—	126	—	131	125	—	(143)	—	—	130	127	120	120	120	119
46.	91	90	91	98	80	93	102	77	(84)	92	90	91	97	83	94	—	92	94	92	—	—	—	95	—	94	98	—	93	86	—	93	90	—	89	92	92
47.	—	113	105	110	98	—	112	113	100	107	111	—	109	103	105	—	111	106	112	108	—	—	100	—	—	118	—	—	—	—	113	—	111	108	105	105
48.	63	67	65	68	55	70	68	70	61	66	70	68	62	61	62	73	70	65	70	64	63	—	60	—	—	70	—	68	—	—	71	(66)	66	63	(57)	(56)
51.	37	40	35	38	36	36	37	39	37	36	40	39	41	36	36	39	39	37	38	41	38	—	37	—	—	41	—	42	—	—	39	37	40	38	36	37
52.	31	33	32	32	28	32	33	34	31	30	32	32	32	30	30	34	34	32	32	29	32	—	32	—	—	32	—	32	—	—	33	30	32	33	30	30
54.	24	25	25	26	22	26	25	23	23	24	23	25	25	24	23	22	23	24	25	24	—	—	22	—	—	24	—	23	—	—	24	23	20	(24)	22	23
55.	46	46	45	49	55	52	48	53	44	45	50	50	47	41	45	54	50	45	51	50	47	—	46	—	—	50	—	51	—	—	49	48	51	49	48	44
62.	43	46	44	—	40	—	—	—	—	44	—	—	43	47	41	—	—	48	49	—	—	—	—	—	—	44	—	—	—	—	46	45	44	—	—	—
63.	—	36	—	—	37	—	40	36	37	36	41	39	40	36	43	—	38	32	41	—	—	—	—	—	—	41	—	40	40	—	41	—	—	—	—	39
65.	—	119	106	109	106	—	104	119	112	107	122	—	113	113	—	—	—	115	110	128	—	—	114	—	—	120	106	—	122	112	—	121	—	108	116	—
66.	—	92	92	88	84	—	98	98	96	94	97	—	90	89	95	—	93	84	92	107	—	—	95	(102)	98	104	87	—	89	89	94	97	—	94	92	95
69.	—	35	29	30	27	29	34	29	26	31	30	—	31	31	31	31	28	28	30	30	28	30	27	29	30	33	32	28	30	31	31	31	32	29	28	35
70.	—	55	55	62	55	63	63	59	55	57	63	—	60	57	59	64	55	63	66	63	60	—	59	63	72	70	64	—	57	59	62	56	—	65	58	58
71.	—	31	32	27	29	29	36	29	28	30	29	—	31	34	31	31	31	35	35	32	30	31	30	30	31	28	31	—	30	29	28	29	33	26	29	31
72.	86°	—	—	81°	83°	—	—	—	—	84°	—	81°	87°	78°	84°	86°	—	—	83°	—	—	—	—	—	—	83°	—	—	—	—	—	84°	—	—	—	85°
8:1	75,4	79,3	81,0	72,3	71,4	73,0	84,2	63,8	78,0	72,2	83,9	76,0	79,9	75,3	74,6	81,7	76,1	73,3	70,9	77,1	71,8	71,1	83,1	76,0	(70,3)	72,3	72,1	75,8	71,9	72,9	79,0	77,2	69,6	76,3	75,7	79,5
17:1	73,1	—	—	64,7	68,0	—	—	—	71,4	73,3	65,2	68,2	67,2	69,0	72,9	70,0	65,9	—	73,1	73,8	67,0	70,1	—	—	76,8	71,8	—	69,9	—	—	—	68,5	—	—	—	77,1
17:8	97,0	—	—	89,5	95,2	—	—	—	91,6	101,5	77,7	89,7	84,2	91,6	97,8	85,7	86,6	—	103,1	95,7	93,3	98,5	—	—	108,3	99,3	—	92,2	—	—	—	88,7	—	—	—	97,0
9:8	71,2	65,5	70,2	70,7	72,0	69,2	73,7	76,7	64,8	75,4	63,1	73,5	71,2	74,1	71,9	65,3	67,2	70,5	72,9	66,7	70,4	69,2	67,7	72,2	71,5	72,1	69,0	69,5	68,4	62,8	64,3	64,8	69,5	69,7	70,8	65,2
47:45	—	85,6	85,4	92,4	84,5	—	—	—	—	89,2	84,1	—	—	88,8	86,8	—	96,5	86,9	93,3	—	—	—	79,4	—	—	94,4	—	—	—	—	86,9	—	92,5	90,0	87,5	88,2
48:45	52,1	50,8	52,9	57,1	47,4	—	—	—	—	55,0	53,0	54,0	—	52,6	51,2	56,2	60,9	53,3	58,3	—	—	—	47,6	—	—	56,0	—	47,6	—	—	54,6	52,0	55,0	52,5	47,5	47,1
52:51	83,8	82,5	91,4	84,2	77,8	88,9	89,2	87,2	83,8	83,3	80,0	82,1	78,1	83,3	83,3	87,2	87,2	86,5	84,2	70,7	84,2	—	86,5	—	—	78,1	—	76,2	—	—	84,6	81,1	80,0	86,8	83,3	81,1
54:55	52,2	54,4	55,6	53,1	40,0	50,0	52,1	43,4	52,3	53,3	46,0	50,0	53,2	58,5	51,1	40,7	46,0	53,3	49,0	48,0	—	—	47,8	—	—	48,0	—	45,1	—	—	49,0	47,9	39,2	49,0	45,8	52,3
63:62	—	78,3	—	—	92,5	—	—	—	—	81,8	—	—	93,0	76,6	104,9	—	—	66,7	83,7	—	—	—	—	—	—	93,2	—	—	—	—	89,1	—	—	—	—	—
N. vert.	Sphen.	Sphen.	Ell.	Pent.— Ov.	Pent.	Ell.	Sphaer.	—	Sphen.	Quadr.	Eury — Pent.	Ell.	Ov.	Pent.	Ov.	Sphaer.	Ov.	Ov.	Ov.	Ov.	Pent.— Ov.	Sphen.	Sphen.	Pent.— Ell.	Ell.	Ell.	Ell.	Sphen.	D. Pent.	Pent.	Pent.	Ov.	D. Ov.	Ov.	Ell.	Ov.
Glab.	2	1	1	1	1	2	1	1	2	1	1	1	1	1	2	2	2	2	1	1	2	2	1	2	—	3	1	1	2	1	2	2	2	2	2	1
Pr. occ. e.	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	2	1	0	2	0	1	0	0	1	0	0	0
F. can.	3	4	2	2—3	3	3	3	1	4	2	2	3	3	5	2	3	2	4	2	2	2	—	1	—	1	1	—	2	3	2	2	2—3	2	2	5	2
Sp. nas.	2	2	2	1	1	2	—	—	—	1	2	2	1	2	3	2	3	1	3	—	—	—	3	—	3	1	—	—	—	1	1	2	—	—	—	—
A. progn.	2	2—3	3	2	3	2	1	2	2	3	3	3	2	3	2	2	3	2	3	1	3	—	3	3	1	1	—	2	2	2	3	2	3	2	2	3
Calculated stature	—	146	—	—	—	—	—	157	155	149	149	150	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Type	m	a—x	a—x	moid	m (?)—x	mo—x	crB	m	crA—x	m—mo	crB	m—x	a—1	m	n—crA	crB—x	mo (s)	n—crA	m—mo	crA—x	crA—x	—	a—x	—	n	n	—	crA	n	n	moid	n—x	n	n—x	crA	crB—mo

Table 10. Orosháza—Rákóczitelep.—Arpadian Age.
Subadults and infants

No. of measurements (Martin)	Measurements and indices	86. 52.337 Inf. II. ?	92. 52.340 Juv. ?	132. 52.350 Juv.	144. 52.357 Inf. II.	154. 52.360 Inf. II.	161. 52.362 Juv.	218. 52.381 Inf. I.	351. 7633 Inf. II.	404. 7658 Juv.	420. 7666 Inf. II.	441. 7673 Juv.	444. 7676 Inf. II.	501. 7700 Inf. II.	(540.) 7716 Inf. II.	639. 7755 Juv.	643. 7757 Inf. II.	645. 7758 Inf. II.	658. 7765 Inf. II.
1.	Glabello-occipital length	—	180	179	168	168	161	163	182	181	159	181	181	183	177	179	174	181	177
5.	Basion-nasion length	—	—	96	95	—	—	—	92	104	89	92	—	—	(90)	—	—	104	—
8.	Maximum breadth of cranium	130	134	128	134	131	—	133	140	126	126	136	128	—	137	—	142	130	126
9.	Minimum frontal breadth	88	91	87	93	87	87	79	91	97	91	91	88	96	92	103	90	94	91
17.	Basion-bregma height	—	—	120	129	—	—	—	122	135	116	120	—	—	128	—	—	140	—
20.	Porion-bregma height	—	96	107	98	101	—	—	107	112	108	109	116	122	115	—	108	120	109
40.	Sup. facial length	—	—	97	87	—	—	—	85	97	—	92	—	—	(84)	—	—	—	—
45.	Bizygomatic breadth	—	—	116	117	103	—	—	110	—	—	—	—	—	109	—	(109)	(105)	—
46.	Maxillar breadth	—	—	84	90	75	—	—	79	98	72	—	76	—	81	90	78	—	—
47.	Total facial height	—	—	102	—	94	—	—	94	99	92	—	94	116	92	105	95	95	97
48.	Upper facial height	—	—	63	60	56	—	—	58	61	55	66	58	70	54	69	54	55	52
51.	Orbital breadth	—	—	38	40	35	—	—	32	34	34	38	37	38	36	39	36	38	39
52.	Orbital height	—	—	30	33	32	—	—	32	29	31	31	30	31	31	34	32	33	31
54.	Nasal breadth	—	—	23	22	21	—	—	21	21	18	26	20	27	(21)	23	21	—	22
55.	Nasal height	—	—	47	—	—	—	—	43	42	40	46	43	50	39	51	41	43	44
62.	Palatal length	—	—	40	33	—	—	—	35	41	—	—	—	—	34	—	—	—	37
63.	Palatal breadth	—	—	33	35	29	—	—	—	—	—	36	35	39	—	36	—	—	—
65.	Bicondylar-diameter	—	—	—	—	—	115	—	—	—	100	—	—	—	96	105	96	103	—
66.	Bigonial-diameter	—	88	87	—	80	95	69	87	—	80	—	97	—	88	88	79	88	—
69.	Mental height	—	25	28	—	23	31	23	23	28	24	—	25	38	24	29	24	26	26
70.	Ramus height	—	59	—	—	46	57	36	50	52	45	—	52	—	45	57	48	49	—
71.	Ramus breadth	—	29	—	—	25	30	24	28	30	24	29	31	30	27	28	25	27	29
8:1	Cranial index	—	74,4	71,5	79,8	78,0	—	81,6	76,9	69,6	79,3	75,1	70,7	—	77,4	—	85,6	71,8	71,2
17:1	Length-height index	—	—	67,0	76,8	—	—	—	67,0	74,6	72,9	66,3	—	—	72,3	—	—	77,4	—
17:8	Breadth-height index	—	—	93,8	96,3	—	—	—	87,1	107,1	92,1	88,2	—	—	93,4	—	—	107,7	—
9:8	Transvers. frontopar. index	67,7	67,9	68,0	69,4	66,4	—	59,4	65,0	77,0	72,2	66,9	68,7	—	67,2	—	63,4	72,3	72,2
47:45	Facial index	—	—	87,9	—	91,3	—	—	85,5	—	—	—	—	—	84,4	—	87,2	90,5	—
48:45	Upper facial index	—	—	54,3	51,3	54,4	—	—	52,7	—	—	—	—	—	49,5	—	49,5	52,4	—
52:51	Orbital index	—	—	79,0	82,5	91,4	—	—	100,0	85,3	91,2	81,6	81,1	81,6	86,1	87,2	88,9	86,8	79,5
54:55	Nasal index	—	—	48,9	—	—	—	—	48,8	50,0	45,0	56,5	46,5	54,0	53,9	45,1	51,2	—	50,0
63:62	Palatal index	—	—	82,5	106,1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Norma verticalis	Pent.	Pent.	—	Pent.	Pent.	Sphaer.	Pent.	Ell.	Ell.	Sphaer.	Sphen.	Sphen.	Ov.	Pent.	Ell.	Pent.—Ov.	Sphen.	Ov.
	Glabella	1	1	—	1	1	1	1	1	1	1	2	2	3	1	1	1	1	1
	Protuberantia occipitalis externa	—	0	—	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fossa canina	—	—	—	2—3	3	—	—	3	2	2	3	3	1	1	2	1	1	1
	Spina nasalis anterior	—	—	—	—	2	—	—	2	3	3	—	—	2	2	4	3	—	2
	Alveolar prognathism	—	—	—	1	1	—	—	2	1	1	3	1	3	1	2	1	1	3

Table 11. Orosháza—Rákóczitelep.—Arpadian Age. Fragmentary material

Grave No.	Inv. No.	Rough morphological characterization	Age, sex	Max. cran. length	Max. cran. breadth.	Cran. index
349.	7632	Incomplete calva with mandible of brachymorphic character.	14—18 (Juv.)	—	145	—
359.	7636	Incomplete cranium. Left ramus patinated. Markedly dolichomorphic. Moderate lambdoid flattening. Cranial base and left temporal missing.	8—9 (Inf. II.)	177	—	—
361.	7635	Incomplete cranium. Dolichocranic. N.vert.: dolichoovoid. Glabella: 2. Mastoid process small. Lambdoid flattening.	20—25 (Ad.)	183	132	72,1
367.	7641	Incomplete cranium of dolichomorphic character. Warped. N.vert.: sphenoid. Glabella: 1. Mastoid process medium. Lambdoid flattening. Mandible medium-high.	20—25 (Ad.)	193	—	—
368.	7642	Incomplete cranium of dolichomorphic character. Warped. N.vert.: sphenoid. Glabella: 1. Mastoid process medium. Mandible high, gracile. Stature: 151 cm.	45—50 (Mat.) (♂)	179	—	—
370.	7644	Good calva with mandible. N.vert.: sphenoid. Dolichocranic. Glabella: 2. Mastoid process medium. Lambdoid flattening. Prot. occ. ext.: 3. Mandible low, broad, angular. Stature: 164 cm.	35—40 (Ad.) (♂)	182	139	76,4
376.	7647	Incomplete cranium. N.vert.: sphenoid. Occipital segment warped. Mesocranic. Glabella: 3. Moderate lambdoid flattening. Orbits low, angular. Mastoid process small.	25—30 (Ad.)	179	135	75,4
377.	7648	Good calva with incomplete mandible. N.vert.: shieldshaped. Brachycranic. Lambdoid flattening, moderate bathrocephaly. Forehead strongly domed. Glabella: 2. Mastoid process large. Metopic suture. Mandible high, gonial angles flaring.	40—45 (Mat.) (♀)	176	148	84,1
385.	7649	Cranial fragments. Incomplete, warped. N.vert: ellipsoid. Dolichomorphic. Glabella: 3. Lambdoid flattening. Mastoid process very strongly pronounced. Fossa canina deep. Marked alveolar prognathism. Mandible medium-high. Stature: 164 cm.	30—35 (Ad.) (♂)	192	—	—
386.	7650	Very incomplete cranium with mandible. Dolichomorphic. Glabella: 2. Face medium-broad. Nasal bridge low. Calvaria mostly missing. Mastoid process small. Mandible low, gracile. Stature: 155 cm.	25—30 (Ad.) (♀)	—	—	—
393.	7654	Very incomplete cranium with mandible. N.vert.: ellipsoid. Dolichocranic. Glabella: 2. Mastoid process medium. Fossa canina very deep. Marked alveolar prognathism. Mandible very high.	45—50 (Mat.) (♂)	182	132	72,5
396.	7656	Incomplete, strongly warped cranium. N.vert.: ovoid. Hyperbranchycranic. Glabella: 2. Lambdoid flattening. Mastoid process large. Fossa canina medium-deep. Marked alveolar prognathism. Mandible medium-high.	25—30 (Ad.) (♂)	184	159	86,4
402.	7657	Calva with mandible. N.vert.: pentagonoid. Ultrabrachycranic. N.occ.: spheroid.	7—8 (Inf. II.)	169	(157)	(92,9)
411.	7663	Very incomplete cranium. N.vert.: ovoid. Medium-long. Warped. Glabella: 2. Fossa canina: 2. Strong alveolar prognathism. Mandible low, broad.	14—18 (Juv.)	182	—	—
439.	7671	Calva. N.vert.: ovoid. Mesocranic. Glabella: 2. Prot. occ.ext.: 1. Cranium low.	20—25 (Ad.) (♀)	183	138	75,4
464.	7687	Incomplete, very fragmentary cranium of mesocranic character. Glabella: 1. Mandible low, gracile.	13—14 (Inf. II.)	181	—	—
465.	7688	Incomplete, very fragmentary cranium. N.vert.: ellipsoid. Plagiocephalic. Hyperdolichomorphic. Strongly warped. Glabella: 1. Mastoid process small. Mandible fairly gracile. Stature: 151 cm.	35—40 (Ad.) (♀)	(188)	—	—
489.	7691	Very incomplete, fragmentary cranium. Strongly warped. N.vert.: ellipsoid (?). Hyperdolichomorphic. Glabella: 2—3. Fossa canina: 4. Mandible low, broad.	40—45 (Mat.) (♂)	—	—	—
493.	7693	Facial part of cranium. Glabella: 2. Fossa canina: 3. Nose slightly protruding. Marked alveolar prognathism. Mongoloid (?) features. Orbits high, roundish.	25—30 (Ad.)	—	—	—
496.	7615	Calvaria. N.vert.: pentagonoid. Brachycranic. Glabella: 1. Lambdoid flattening. Mastoid process massive, medium. Os epiptericum.	45—50 (Mat.) (♀)	178	(144)	(80,9)
497.	7696	Incomplete, strongly warped cranium. Hyperdolichomorphic. Glabella: 2. Fossa canina: 3. Marked alveolar prognathism. Mandible medium-high, chin form triangular.	20—25 (Ad.) (♂)	(199)	—	—
507.	7703	Calva and fragment of facial skeleton. Strongly warped of mesocranic character. Glabella: 4. Mandible medium-high.	30—35 (Ad.)	—	—	—
509.	7704	Incomplete, warped cranium. Dolichomorphic, laterally compressed. N.vert.: ellipsoid. Very strong alveolar prognathism, prodentia. Mandible low, gracile.	14—18 (Juv.)	(182)	—	—
515.	7708	Strongly warped, fragmentary cranium. N.vert.: sphenoid. Glabella: 1. Mandible medium-high. Orbits high, round. Brachymorphic.	20—25 (Juv.—Ad.) (♀)	—	—	—
517.	7709	Strongly warped, fragmentary cranium. N.vert.: spheno-ellipsoid. Dolichomorphic. Glabella: 2. Lambdoid flattening. Mandible medium.	30—35 (Ad.) (♀)	(197)	—	—
536.	7713	Calva. N.vert.: ellipsoid. Hyperdolichocranic. Metopic suture. Glabella: 1. Lambdoid flattening. Mastoid process small.	30—35 (Ad.) (♀)	183	(127)	69,4
544.	7718	Incomplete, warped cranium. N.vert.: ovoid. Mesocranic. Lambdoid flattening. Mandible medium-high.	Appr. 7. (Inf. II.)	174	136	78,2
551.	7719	Calva. N.vert.: ovoid. Dolichocranic. Glabella: 2. Forehead sloped. Mastoid process massive. Prot.occ.ext.: 3.	40—45 (Mat.) (♂)	183	136	74,3
560.	7723	Incomplete, fragmentary cranium. N. vert.: ovoid of mesocranic character. Forehead slightly sloping.	14—18 (Juv.)	—	—	—
564.	7724	Incomplete, fragmentary cranium. N. vert.: sphenoid. Dolichocranic. Glabella: 1. Face rather narrow. Fossa canina: 2. Mandible high, fairly gracile.	50—55 (Mat.) (♂)	185	(137)	74,1
565.	7725	Fragmentary, warped calva. N. vert.: spheroid. Hyperbrachycranic. Glabella: 2. Mastiod process massive. Forehead low. Cranial vault low.	50—55 (Mat.) (♂)	171	150	87,7
566.	7726	Fragmentary, incomplete calva. N.vert.: pentagonoid. Brachycranic. Glabella: 1. Mastoid process small. Forehead low. Lambdoid flattening.	50—55 (Mat.) (♀)	178	150	84,3
570.	7728	Calva with mandible. N.vert.: ovoid. Mesocranic. Glabella: 4. Mastoid process massive. Mandible low, angular. Considerable odontholithiasis.	50—55 (Mat.) (♂)	190	150	78,9
584.	7729	Very incomplete cranium. N.vert.: ovoid. Slightly warped. Dolichomorphic. Fossa canina: 5. Strong alveolar prognathism. Mandible low, gracile.	30—35 (Ad.) (♀)	174	—	—
597.	7738	Very incomplete, fragmentary cranium. N. vert.: dolicho-ovoid. Hyperdolichocranic. Forehead sloping. Glabella: 4. Slightly warped. Fossa canina: 2. Mandible fairly low.	45—50 (Mat.) (♂)	187	(130)	69,5
602.	7741	Calva and fragment of mandible. N.vert.: pentagono-ovoid. Mesocranic. Glabella: 1. Lambdoid flattening. Mandible high.	20—25 (Ad.)	184	140	76,1
648.	7759	Incomplete calvarium without mandible. N.vert.: sphenoid. Laterally slightly compressed. Hyperdolichocranic (?). Glabella: 1. Lambdoid flattening. Orbits high. Prot. occ. ext.: 1—2.	20—25 (Ad.) (♀)	180	(123)	68,3
656.	7763	Incomplete, warped cranium. Hyperdolichocranic. N.vert.: cocoon-shaped. Glabella: 1. Lambdoid flattening. Fossa canina: 2.	14—18 (Juv.)	183	124	67,8

Table 12. Orosháza—Rákóczitelep. Arpadian Age.
Measurements of long bones.

Grave N°	Inventory N°	Femur				Tibia		Humerus		Radius		Ulna		Calculated stature
		greatest length		length in natural position										
		right	left	right	left	right	left	right	left	right	left	right	left	
Males														
7.	52.324	474	478	466	472	404	—	339	—	268	—	—	—	172
57.	52.329	456	450	450	446	389	386	327	322	253	—	279	—	168
123.	52.344	—	—	—	—	399	399	—	338	—	266	—	—	173
128.	52.348	408	410	406	408	340	340	337	334	238	234	260	260	160
139.	52.353	488	495	486	492	396	398	—	352	—	—	—	—	174
155.	52.361	456	454	452	451	382	379	338	338	—	—	—	—	168
178.	52.370	458	450	454	448	357	355	328	324	345	342	269	267	165
362.	7638	477	483	475	479	400	400	—	—	284	284	264	262	173
370.	7644	435	437	433	436	362	360	—	315	241	—	260	269	163
385.	7649	438	445	436	443	352	353	321	315	239	—	261	261	163
390.	7651	401	401	397	396	325	326	286	283	(209)	206	—	231	155
413.	7664	426	426	424	422	344	343	320	—	—	231	—	265	161
430.	7670	463	464	460	459	380	382	343	340	261	261	282	283	169
445.	7677	(457)	461	457	460	—	—	338	336	245	247	272	270	168
448.	7679	459	457	457	454	376	370	334	330	255	252	—	—	168
459.	7684	451	446	448	445	378	377	327	324	247	247	271	269	167
500.	7699	442	443	439	440	364	362	319	317	241	—	267	—	164
541.	7717	441	447	439	443	358	354	333	331	245	250	263	265	165
Females														
80.	52.332	—	—	—	—	—	375	336	—	232	226	—	247	162
81.	52.333	402	407	399	404	—	—	—	—	—	—	—	—	152
187.	52.375	417	420	411	414	340	338	—	—	222	220	236	—	155
358.	7635	—	—	—	—	—	296	—	277	—	(189)	—	207	144
368.	7642	404	410	400	405	330	327	281	280	213	213	230	—	152
386.	7650	419	424	414	418	344	342	—	297	223	—	245	243	155
394.	7655	397	399	394	395	325	322	275	271	212	209	229	225	146
442.	7674	432	436	430	430	346	342	305	298	224	219	—	241	157
446.	7678	419	421	416	417	340	340	314	310	—	235	—	—	155
456.	7682	390	392	387	388	310	316	293	295	220	218	238	242	149
457.	7683	380	383	377	379	328	329	290	288	213	211	233	—	149
460.	7685	392	399	391	392	324	324	(284)	278	213	210	230	—	150
465.	7688	—	—	—	—	—	—	273	269	222	220	245	241	153

Fig. 1. Orosháza—Rákóczitelep, 10—12th century.
Grave 163. ♂

Fig. 2. Orosháza—Rákóczitelep, 10—12th century.
Grave 261. ♂

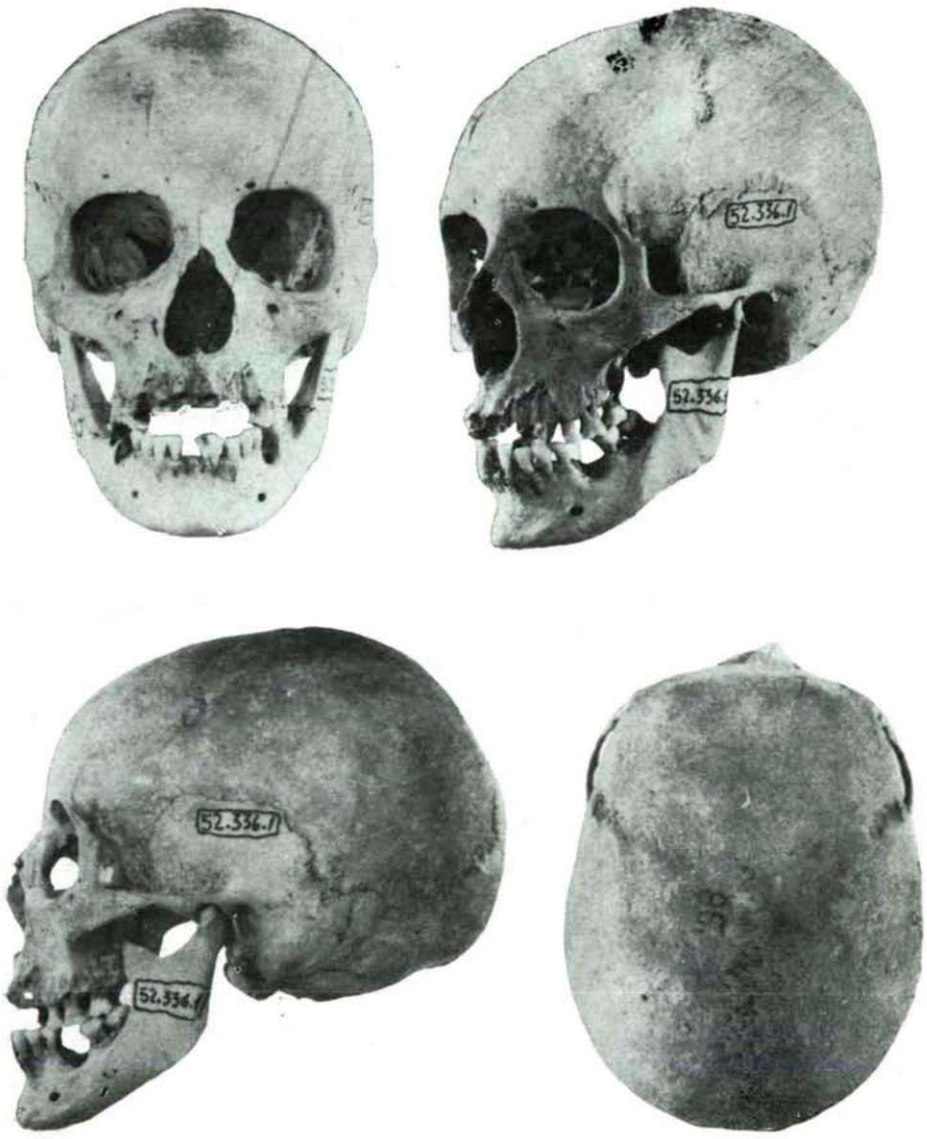

Fig. 3. Orosháza—Rákóczitelep, 10—12th century.
Grave 85. ♂

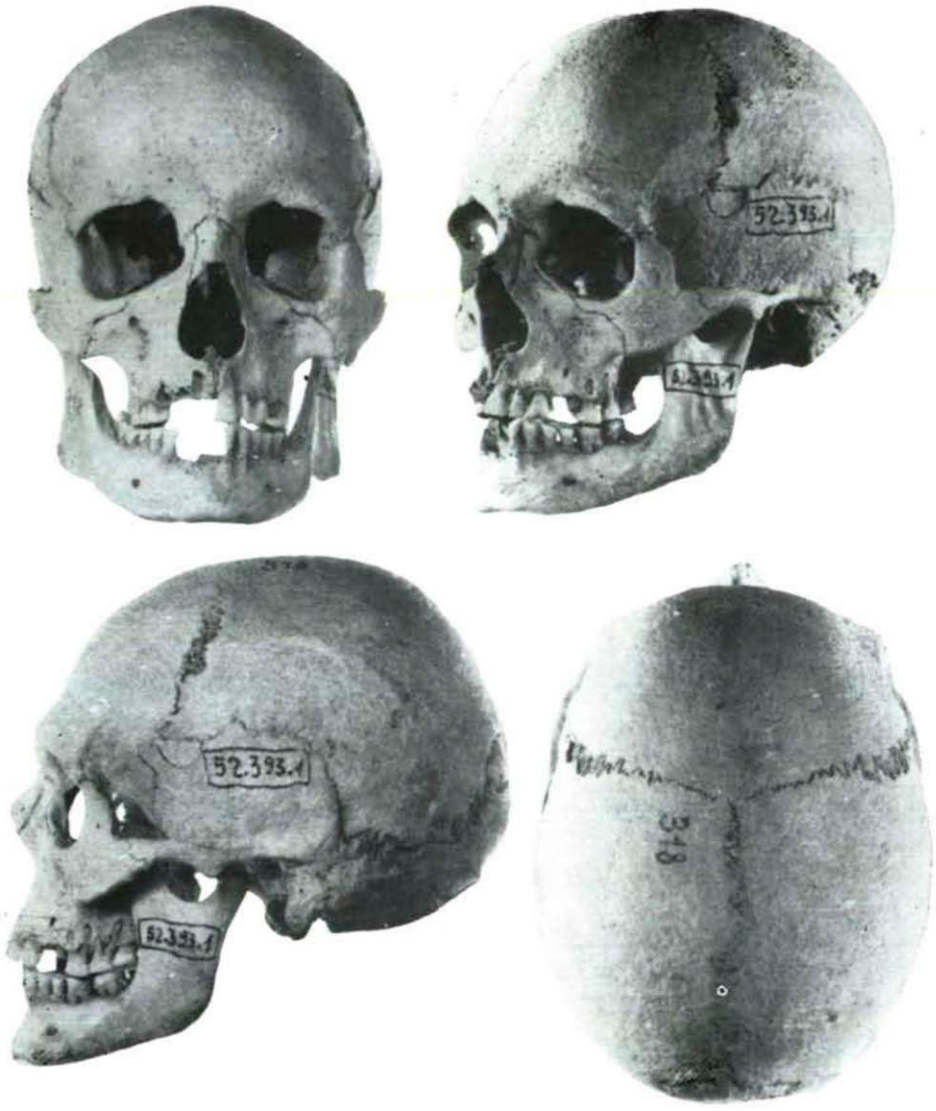

Fig. 4. Orosháza—Rákóczitelep, 10—12the century.
Grave 318. ♂